Ref. 1

RADIO COMMUNICATION EQUIPMENT

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- international: H04Q7/36; H04B7/26
- european:
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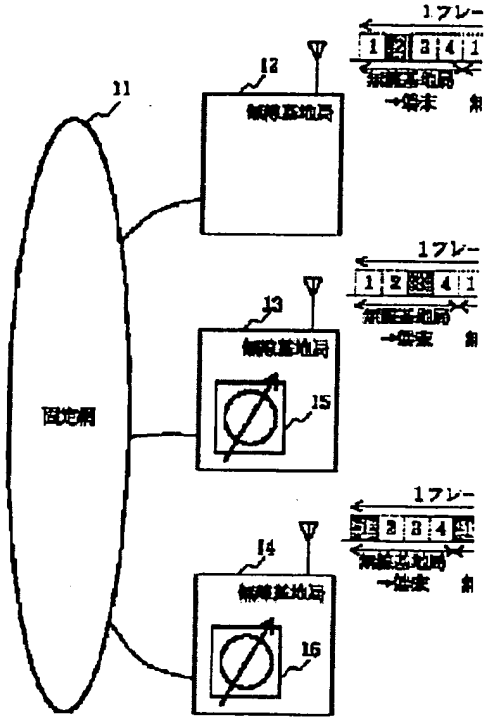
Abstract of **JP7046660**

PURPOSE:To establish frame synchronization among radio base stations for performing communication by a TDMA-TDD system.

CONSTITUTION:Information for indicating the position of a slot inside a frame is inserted to the slot of control signals transmitted from the radio base station 12. In the radio base station 13 for performing the frame synchronization, the control signal transmission timing of the present station is synchronized with the reception timing of the control signals and the frame synchronization is established corresponding to the position of the slot of the reception control signals inside the frame.



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Application Date: July 28, 1993

Applicant: Nihon Denshin Denwa K.K.

Inventors: Ikuo Tomoda et al

Title of the Invention: Wireless Communication System

Abstract:

The object of the present invention is to provide a control signal transmission timing system permitting base stations, which perform TDMA-TDD communications, to establish synchronization of control signals in respect of their frames.

Fig.1 shows a control-signal transmission timing system according to the present invention (base stations 12, 13 and 14 being connected to stationary network 11); Fig.2 shows the slot format of each frame for the control signal; Fig.3 is a flow chart showing how a required synchronization can be established in a base station 12, 13 or 14; Fig.4 shows the state of control signals being transmitted and received in base stations 12, 13 and 14 prior to establishment of synchronization; Fig.5 shows that control signals are made to be coincident in respect of slots 1, 2, 3 or 4 in base stations 12 and 13; Fig.6 shows that synchronization is established between base stations 12 and 13 in respect of frames; and Fig.7 shows that synchronization is established in all base stations 12, 13 and 14.

The flow chart of Fig.3 reads:

Control signal sent from base station 12 ⇒ Control signal from base station 12 received by base station 13 ⇒ Variable delay control 15 used to reduce the lag of the received control signal relative to the control signal to be sent from base station 13 ⇒ Received control signal decoded in base station 13 to identify slots ⇒ Delay of received control signal reduced per slots (Figs.5 and 6) ⇒ Adjustment finished ? (YES) ⇒ Control signal sent from base station 13 ⇒ Control signal from base station 13 received by base station 14; and so on.

Fig.2:

← one frame→

1 2 3 4 1 2 3 4

base→term. term.→base

bit types:	R	SS	PR	UW	CAC	G
bit number:	4	2	62	32	124	16